

**Table 2** Age adjusted multivariate relation between cardiovascular risk factors\* and BAC

Variable present	OR	95% CI
Hypertension	0.9	0.6 to 1.3
Hypercholesterolaemia	0.9	0.5 to 1.7
Smoking	0.6	0.4 to 0.9
Pregnancy	5.3	2.2 to 13.2
Lactation	2.2	1.4 to 3.6

\*Prevalence of diabetes was too low (2.8%) to estimate its relation with BAC.

system. A variety of stimuli, such as inflammatory cytokines, lipids, glucotoxicity, and hypercalcaemia, are described to induce calcification in vascular smooth muscle cells.<sup>5</sup> Various causative factors are likely to be involved in the calcification processes in different locations and types of the vascular tree. As pregnancy and breastfeeding are strongly associated with mammographic arterial calcifications, hypercalcaemia during pregnancy and lactation combined with the increased blood flow in the breast arteries may trigger vascular smooth muscle cells to enhance calcification.

We have no explanation, however, for why the prevalence of BAC is higher in women at increased cardiovascular risk than in healthy middle aged women.

## ACKNOWLEDGEMENTS

This study was financially supported by research grant 2100.086 of ZonMw (Netherlands Organization for Health Research and Development).

## Authors' affiliations

**A H E M Maas**, Department of Cardiology, Isala Klinieken, Zwolle, the Netherlands

**Y T van der Schouw, Y van der Graaf**, Julius Centre for Health Sciences and Primary Care, University Medical Centre Utrecht, the Netherlands

**D Beijerinck, J J Deurenberg**, Preventicon Breast Cancer Screening Centre, Utrecht, the Netherlands

**W P T M Mali**, Department of Radiology, University Medical Centre Utrecht, the Netherlands

Competing interests: None declared.

Correspondence to: Dr Angela H E M Maas, Isala Klinieken, Department of Cardiology, Groot Wezenland 20, 8011 JW Zwolle, Netherlands; a.maas@diagram-zwolle.nl

Accepted 23 September 2005

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## FROM BMJ JOURNALS

### Sleep disturbance, stroke, and heart disease events: evidence from the Caerphilly cohort

Peter Elwood, Melissa Hack, Janet Pickering, Janie Hughes, John Gallacher

Please visit the *Heart* website [www.heartjnl.com] for a link to the full text of this article.

**Objective:** To test the hypothesis that sleep disorders are relevant to the risk of ischaemic stroke and ischaemic heart disease events in older men.

**Design:** A cohort study.

**Setting:** The Caerphilly cohort, a representative population sample of older men in South Wales, UK.

**Participants:** 1986 men aged 55–69 years completed a questionnaire on sleep patterns with help from their partners. This asked about symptoms of disturbed sleep: insomnia, snoring, restless legs, obstructive sleep apnoea, and about daytime sleepiness. During the following 10 years 107 men experienced an ischaemic stroke and 213 had an ischaemic heart disease event.

**Main results:** Up to one third of the men reported at least one symptom suggestive of sleep disturbance, and one third reported daytime sleepiness. Compared with men who reported no such symptoms, the adjusted relative odds of an ischaemic stroke were significantly increased in men with any sleep disturbance, the strongest association being with sleep apnoea (relative odds 1.97; 1.26 to 3.09). The association with daytime sleepiness was not significant for stroke. Relations with ischaemic heart disease events were all raised in men with symptoms of sleep disturbance, but none was significant, other than daytime sleepiness (relative odds 1.41; 1.04 to 1.92). There were no significant relations with blood pressure.

**Conclusion:** The risk of an ischaemic stroke is increased in men whose sleep is frequently disturbed, and daytime sleepiness is associated with a significant increase in ischaemic heart disease events.

▲ *Journal of Epidemiology and Community Health* 2006;**60**:69–73.